

## REMARKS

Claims 1-25 were previously pending in this application.

Claims 17-25 stand withdrawn as non-elected and are hereby cancelled without prejudice for presentation in a divisional application.

Claims 1-16 are pending in this application.

Claim 11 stands rejected under 35 U.S.C. 112, second paragraph. Claim 11 is cancelled.

Claim 1-16 stand rejected under 35 U.S.C. 103(a).

Claims 1 and 13 are amended.

New claims 26-27 are added. New claim 26 recites limitations similar to those of claim 1.

No new matter is added.

Claims 1-10, 12-16 and 26-27 remain in the case.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

### **Claim rejection – 35 USC § 112**

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctively claim the subject matter which applicant regards as the invention.

Claim 11 is cancelled. Thus, the rejection of claim 11 under 35 U.S.C. 112 is moot.

### **Claim rejection – 35 USC § 103**

Claim 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,236,108 to Sota et al. ("Sota") in view of US Patent No. 6,160,705 to Stearns et al. ("Stearns").

The rejection is respectfully traversed.

Claim 1 is amended to recite:

"a substrate including a redundant bond finger, an added bond finger connected to a redundant solder ball pad;

a semiconductor chip having an added bond pad attached to the substrate;

a normal wire bonding unit coupled between the added bond pad and the redundant bond finger; and

an added wire bonding unit coupled between the redundant bond finger and the added bond finger,

wherein the added bond pad is electrically connected to the redundant solder ball pad via the redundant bond finger and the added bond finger."

The Examiner has argued Stearns teaches, "the extension wire (52) coupled between two bond fingers (figure 6)."

In Stearns, an extension 52 is used to stabilize the ground or power line pattern and merely connects ground connections 24, not bond fingers. The ground connections 24 of Stearns are connected to the second metal layer 16 via three vias 54. None of the ground connections 24 connected by the extension 52 are connected to a bond pad. See col. 7, lines 50-66 of the Stearns patent.

In contrast, in the claimed invention recited in claim 1, a normal wire bonding unit is coupled between the added *bond pad* and the redundant bond finger. No such connection is made through the ground connections 24.

Further, the Examiner has argued that "it is inherent that the extension wire is the added wire bonding." However, in relying upon a theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. MPEP 2112; *Ex parte Levy*, 17 USPQ2d 1461, 1464 (BPAI 1990). The Examiner has provided no such basis.

On the contrary, in Stearns, an extension 52 is very different from the bond wire used in the present invention. Specifically, the extension 52 is merely a fixed conductive pattern formed on a package substrate.

Instead, in the present invention, because the bond wire is not limited to the specific package substrate design, it can be used to connect bond fingers in a flexible manner without changing the package substrate design, even if there is a change of chip design. Thus, by using the present invention using the bond wire, the existing substrate can be used without changing the design of the substrate. See page 6, lines 3-8 of the present application.

If the extension 52 shown in Stearns is used to connect bond fingers for implementing the present invention, it would be impossible to connect the bond fingers when there is a change of semiconductor chip design, without changing the package substrate design, because the extension 52 in Stearns is a fixed conductive pattern formed on a semiconductor substrate and cannot be used if there is a chip design change unlike the bond wire. Thus, the extension 52 shown in Stearns is not a bond wire used in the present invention.

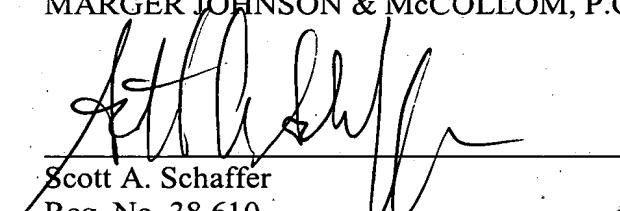
Accordingly, none of the cited references, either alone or in combination, does not teach or disclose the above limitations recited in claim 1, for example, "the added bond pad being electrically connected to the redundant solder ball pad via the redundant bond finger and the added bond finger." See page 5, lines 15-21. Even if Sota is modified by Stearns, it does not teach or suggest the limitations recited in claim 1, because no bond fingers, one of which is connected to an added bond pad, are coupled, using a wire bonding unit or bond wire, as recited in claim 1. Without this connection, the added bond pad cannot be electrically connected to the redundant solder ball pad via the redundant bond finger and the added bond finger.

Accordingly, the rejection does not present a *prima facie* case of obviousness. Therefore, claim 1 is allowable and claims 2-10 and 12, which depend therefrom and recite features that are neither taught nor disclosed in the cited references, are also allowable. Similarly, claim 13 is amended to recite, "an added wire bonding unit coupled between the first printed circuit pattern to the second printed circuit pattern to electrically connect the redundant bond finger with the redundant solder ball pad." For the reasons discussed above, none of the cited references teaches or suggests these limitations.

Accordingly, the rejection does not present a *prima facie* case of obviousness. Therefore, claim 13 is allowable and claims 14-16, which depend therefrom and recite features that are neither taught nor disclosed in the cited references, are also allowable.

For the foregoing reasons, reconsideration and allowance of claims 1-10, 12-16 and 26-27 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,  
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